AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A sensor arrangement ~~(13.1)~~ comprising a radiation-conducting substrate ~~(13.9)~~ which includes a first and a second surface ~~(13.2, 13.3)~~, wherein the first surface ~~(13.2)~~ is a radiation passage area through which radiation of a given wavelength range may be coupled into the substrate ~~(13.9)~~ as well as coupled out of the substrate ~~(13.9)~~, and the second surface ~~(13.3)~~ comprises

– a plurality of sensor fields ~~(13.4)~~ which are designed to reflect radiation of the given wavelength range from the substrate ~~(13.9)~~, which is incident at a predetermined angle range, as well as

– separating regions ~~(13.5)~~ for separating the individual sensor fields ~~(13.4)~~ from the respectively adjacent sensor fields ~~(13.4)~~, with said separating regions ~~(13.5)~~ being designed to absorb radiation of the given wavelength range from the substrate ~~(13.9)~~, which is incident at the predetermined angle range, so as to produce a contrast between the sensor fields ~~(13.4)~~ and the separating regions ~~(13.5)~~ in the radiation reflected at the sensor fields ~~(13.4)~~, and said separating regions ~~(13.5)~~ being formed by a separating agent layer ~~(13.10)~~ on the second surface ~~(13.3)~~ of the substrate ~~(13.9)~~,

~~characterized in that~~ wherein

the separating agent layer ~~(13.10)~~ causes a reflectivity lower than 0.5 for radiation of the given wavelength range from the substrate, which is incident at the predetermined angle range, at the interface between the separating agent layer ~~(13.10)~~ and the substrate ~~(13.9)~~, at least in a first region ~~(13.8)~~ adjacent to the interface between the separating agent layer ~~(13.10)~~ and the substrate ~~(13.9)~~, ~~and~~

the separating agent layer ~~(13.10)~~ causes an extinction higher than 0.95 for radiation of the given wavelength range, at least in a second region ~~(13.7)~~ located above the first region ~~(13.8)~~, on the side opposing the substrate ~~(13.9)~~, and

the separating agent layer comprising one or both of titanium and germanium.

2. (Currently Amended) The sensor arrangement according to claim 1, ~~characterised in that~~ wherein the first and the second region ~~(13.7, 13.8)~~ form part of a unified layer ~~(13.10)~~.

3. (Cancelled)

4. (Currently Amended) The sensor arrangement according to claim 1, ~~characterised in that~~ wherein the first region ~~(13.8)~~ forms part of a first layer ~~(13.11)~~ comprised by the separating agent layer ~~(13.10)~~, and the second region ~~(13.7)~~ forms part of a second layer ~~(13.12)~~ which is comprised by the separating agent layer ~~(13.10)~~ and is different from the first layer ~~(13.11)~~.

5. (Currently Amended) The sensor arrangement according to claim 4, ~~characterised in that~~ wherein the first layer ~~(13.11)~~ comprises one or both of silicon [[or]]and germanium.

6. (Currently Amended) The sensor arrangement according to ~~one of claims 4 or 5~~ claim 4, ~~characterised in that~~ wherein the second layer ~~(13.12)~~ comprises an element selected from the group consisting of germanium, ~~or a~~ metal and mixtures thereof~~, preferably titanium or chromium~~.

7. (Currently Amended) The sensor arrangement according to ~~one of claims 1 to 6~~ claim 1, ~~characterised in that~~ wherein the first and the second region ~~(13.8, 13.7)~~ each have a maximum thickness (D) of 1 μm.

8. (Currently Amended) The sensor arrangement according to ~~one of claims 1 to 7~~ claim 1, ~~characterised in that~~ wherein the separating agent layer ~~(13.10)~~ has a maximum thickness (D) of 1 μm.

9. (Currently Amended) The sensor arrangement according to ~~one of claims 1 to 8~~ claim 1, ~~characterised in that~~ wherein the second region ~~(13.7)~~ has a thickness (D) of more than 70 nm~~, preferably of more than 200 nm~~.

10. (Currently Amended) The sensor arrangement according to ~~one of claims 1 to 9, characterised in that~~ claim 1, wherein the first region ~~(13.8)~~ has a thickness (D) of more than 10 nm, preferably of more than 20 nm.

11. (Currently Amended) The sensor arrangement according to ~~one of claims 1 to 10, characterised in that~~ claim 1, wherein the first and the second region ~~(13.8, 13.7)~~ together have a minimum thickness (D) of 80 nm~~, preferably of no less than 100 nm, with a minimum of 200 nm being particularly preferred~~.

12. (Currently Amended) The sensor arrangement according to ~~one of the preceding claims, characterised in that~~ claim 1, wherein there are at least 100~~, preferably at least 1,000~~ sensor fields ~~(13.4)~~ arranged on the substrate ~~(13.1)~~.

13. (Currently Amended) The sensor arrangement according to ~~one of the preceding claims, characterised in that~~ claim 1, wherein each sensor field ~~(13.4)~~ has a surface area smaller than or equal to 6.2×10^{-4} cm^2.

14. (Currently Amended) The sensor arrangement according to ~~one of the preceding claims, characterised in that~~ claim 1, wherein the sensor fields ~~(13.4)~~ have a surface density larger than or equal to 250 fields per cm^2.

15. (Currently Amended) The sensor arrangement according to ~~one of the preceding claims, characterised in that~~ claim 1, wherein the substrate ~~(13.9)~~ is formed as a flat plate.

16. (Currently Amended) The sensor arrangement according to claim 15, ~~characterised in that~~ wherein the flat plate has a total surface area smaller than or equal to 20 cm^2.

17. (Currently Amended) The sensor arrangement according to ~~one of the preceding claims, characterised in that~~ claim 1, wherein the sensor fields ~~(13.4)~~ comprise an SPR-suitable layer ~~(13.6)~~.

18. (Currently Amended) An optical measurement arrangement comprising:

a sensor arrangement according to ~~one of claims 1 to 17~~ claim 1,

an optical means ~~(2.11, 2.12)~~ for coupling radiation of the given wavelength range into the substrate ~~(13.9)~~ of the sensor arrangement via the first surface ~~(13.2)~~, at an angle within the predetermined angle range, and for coupling out the radiation reflected by the sensor fields ~~(13.4)~~,

a radiation source for supplying radiation of the given wavelength range to the optical means, and

a detector arranged to detect the radiation coupled out of the optical means and reflected by the sensor fields ~~(13.4)~~.

19. (Currently Amended) A method of manufacturing a sensor arrangement according to ~~one of claims 1 to 17~~ claim 1, comprising the step of:

forming a separating agent layer ~~(13.10)~~ on the substrate ~~(13.9)~~ such that free regions defining sensor fields ~~(13.4)~~ are created, with the separating agent layer ~~(13.9)~~ being applied by vapour deposition.

20. (Currently Amended) The method according to claim 19, comprising the further step of applying an SPR-suitable layer ~~(13.6)~~, at least in the free regions, to form the sensor fields ~~(13.4)~~.

21. (Currently Amended) The method according to claim 19 ~~or 20, characterised in that~~ wherein the step of forming the separating agent layer ~~(13.10)~~ comprises

applying a structurable lacquer layer ~~(6.3)~~ on the substrate ~~(6.4)~~;

structuring the lacquer layer ~~(6.3)~~ to define the free regions, and removing the lacquer such that lacquer remains only in the area of the free regions;

vapour-depositing one or more first materials to form the first region ~~(13.8)~~ and subsequently one or more second materials to form the second region ~~(13.7)~~; and

carrying out a lift-off to lift off the coated lacquer present in the free regions so as to expose the substrate at the free regions.

22. (Currently Amended) The method according to claim 19 ~~or 20, characterised in that~~ wherein the step of forming the separating agent layer ~~(13.10)~~ comprises

applying a structurable lacquer layer by means of a screen printing technique;

vapour-depositing one or more first materials to form the first region ~~(13.8)~~ and subsequently one or more second materials to form the second region ~~(13.7)~~; and

carrying out a lift-off to lift off the coated lacquer present in the free regions so as to expose the substrate at the free regions.

23, (Currently Amended) The method according to claim 19 ~~or 20~~, ~~characterised in that~~

wherein the step of forming the separating agent layer ~~(13.10)~~ comprises

vapour-depositing the separating agent material homogeneously over the entire substrate ~~(6.4)~~;

protecting the later separating regions by means of structurable lacquer; and

exposing the sensor fields by selectively etching and removing the protective lacquer.

24. (Currently Amended) The method according to one of claims 20 ~~to 23~~, ~~characterised in that~~ wherein the step of applying an SPR-suitable layer ~~(13.6)~~ comprises vapour-depositing an SPR-suitable layer ~~(13.6)~~, preferably of gold, on the free regions and the separating agent layer.

25. (Cancelled).

26. (Cancelled).

27. (Cancelled).

28. (New) The sensor arrangement according to claim 6, wherein the second layer comprises titanium or chromium.

29. (New) The sensor arrangement according to claim 9, wherein the second region has a thickness (D) of more than 200 nm.

30. (New) The sensor arrangement according to claim 10, wherein the first region has a thickness (D) of more than 20 nm

31. (New) The sensor arrangement according to claim 11, wherein the first and the second region together have a minimum thickness (D) of no less than 100 nm.

32. (New) The sensor arrangement according to claim 11, wherein the first and the second region together have a minimum thickness (D) of 200 nm.

33. (New) The sensor arrangement according to claim 12, wherein there are at least 1,000 sensor fields arranged on the substrate.